

Thermal Kit: The Key points

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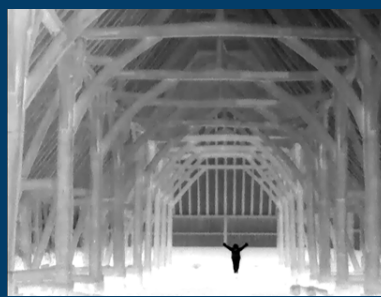
Pulsar XP28, Guide TrackIR Pro19 and FLIR T630SC were tested in field situations. This should not be seen as a direct comparison – the FLIR devices used are in a league of their own for many reasons, but its important to understand those differences when it comes to kit selection for an application. All opinions are my own, based on my findings and on the models I had to hand. (The overall % ratings are crude but give an indication of performance)

Key Equipment Specifications to consider:

- Detector resolution - higher resolution = more information/detail in the image.
- Field of View - determined by the lens. Extent of the scene the device can see (see image examples).
- Thermal sensitivity/Noise Equivalent Temperature Difference (NETD) - describes the smallest temperature you can detect with the sensor. The lower the number the better the sensitivity.
- Refresh rate/Frame rate - 30Hz and above is recommended for bat work.
- Type of data - radiometric or standard?



FLIR 13mm



Guide 19mm



Pulsar 28mm

- > All devices had a 640x480 high resolution thermal detector.
- > Standard MP4 recordings were compared across devices alongside radiometric recordings/ images of the same scene.
- > All distances of targets were calculated using a dedicated rangefinder accurate to 1m.
- > The cameras/scopes were all set up along the same horizontal plane and as close together as possible.
- > A FLIR T1030SC High definition camera was introduced in two experiments to test detection distances.

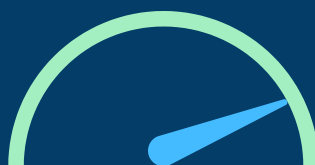
Pulsar Helion XP28



80%

- The Pulsar was robustly made with a wide selection of colour palettes (8) to choose from, which could be easily changed during recording.
- Interchangeable battery was a bonus. Higher capacity is available.
- Out of the box it rendered the scene much darker than than the others. Manual adjustments can be done.
- It struggled to balance the scene where roof tops/treelines met open sky.
- XP28 now discontinued, XP38 widest FOV in range.
- Interchangeable lens options
- Links to smart device for monitor and controls
- Affordable price point

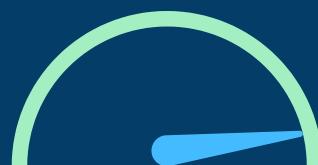
Guide TrackIR Pro19



85%

- Guide was well made with more responsive button feedback in use, compared to Pulsar
- Limited colour palettes (5) compared to Pulsar
- Potentially useful Hot track feature which places a cursor on the hottest part of a scene and tracks it
- Wide FOV - great for coverage but fixed lens
- Able to balance out scenes better than Pulsar
- Out of the box it rendered the scene better than Guide XP28
- Internal battery only limited recording time
- Links to smart device for monitor and controls
- Affordable price point

FLIR T630SC



93%

- Widest FOV enabled best coverage of a scene
- Radiometric data meant nothing was missed
- Interchangeable lens options
- Bulky compared to scopes, but still portable
- Radiometric video requires laptop connection/ power supply in the field for best results
- On board touch screen for viewing and controls with 8 colour palettes.
- Connects to smart device via app
- Rotating lens block for increased recording angles
- Lens options available
- Replaceable batteries
- Model discontinued, but new ones available
- Dedicated analysis software
- Expensive investment

Choosing the right kit for the project or application is a minefield, with a wide variety of devices on the market. There is no device that is specifically designed for our needs as ecologists, with our varied applications, and with that said, it is important to understand the differences between them before throwing away your hard-earned cash.

Scopes are popular and with the right specifications, a great choice for ecologists. However the higher end devices have their place offering much more accuracy and flexibility in specific conditions. Hiring these with expertise when needed is an option to consider.

For the full article on the field test including video clips, and how you can upskill with our [2021 Bespoke Thermal Training Packages](#) for individuals and consultants - check soon on www.sonarecology.co.uk

